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10/716,253	11/17/2003	Eric Chapoulaud	2102402-914991	6494

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EXAMINER

WOLDEMARIAM, AKILILU K

ART UNIT	PAPER NUMBER
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2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/716,253

Applicant(s)

CHAPOULAUD, ERIC

Examiner

Aklilu k. Woldemariam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/17/2003; 6/28/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 20 is objected to because of the following informalities: On line 2," the method " should be replaced by " an apparatus". Appropriate correction is required.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 17 November 2003 was filed after the mailing date of the same day on 17 November 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 1-38 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either an asserted utility or a well established utility

No physical transformation is present to establish a practical application of the idea. The result (locating a boundary of an object) is useful (establishes the specific, substantial and credible utility of giving a boundary of an object) only if at least made available for use in the disclosed practical application, concrete if the locating a boundary of an object is based on objective criteria, and tangible if it is more than just a thought or a computation within a processor, instead being a real world result. In this instance, claim

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1-38 do not appear to produce a tangible result such that the usefulness of the locating a boundary of an object can be realized. It, therefore, appears to be non-statutory.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 20 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either an asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. The written description of the invention is not written in a manner sufficiently clear and concise to describe its makes and uses of the invention.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-12, 14-31 and 33-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Huttenlocher et al. (U.S. Patent number 5539841A).

9. As pertaining to **claims 1 and 20**, Huttenlocher et al. teaches the method and apparatus

automatically locating a boundary of an object (column 7 lines 47-48) of interest in a field of view, the method comprising: forming an electronic image (column 12 lines 26-32) of the field of view containing the object, wherein the electronic image is formed of plurality of image pixels (see Abstract); identifying groups of the image pixels (see Fig.4) that represent edge segments (see Fig 12, 202) of the object; forming patches around the image pixel groups, wherein each patch is dimensioned and positioned to entirely contain one of the image pixel groups; and performing a patch merge process (column 10 lines 45-59) the merges (see Fig.8 102) any two of the patches together that meet a predetermined proximity threshold (see Fig.8 100 and 102) relative to each other to form a merged patch that is dimensioned and positioned to entirely contain the two merged patches (see column 2 lines 54-55) wherein the merge process continues for any of the patches and the merged patches meeting the predetermined proximity threshold until none of the patches and the merged patches meet the predetermined proximity threshold(see Fig.8, 100).

10. As pertaining to **claims 2 and 21**, Huttenlocher et al. teaches the method and apparatus of claims 1, 20 further comprising: associating all the edge segments contained within one of the merged patches as representing the boundary of the object (see Fig.4, column 9 lines 49-55)

11. As pertaining to **claims 3 and 22**, Huttenlocher et al. teaches the method and apparatus of claim 1, 20 wherein the predetermined proximity threshold (see Fig.8, 100

and 102) is a predetermined number of the image pixels (abstract) shared by any of the patches (see column 2 lines 54-55) and merged patches that overlap each other (column 10 line 50-54).

12. As pertaining to **claims 4 and 23**, Huttenlocher et al. teaches the method and apparatus of claims 1,20 wherein the predetermined proximity threshold (see Fig.8, 100 and 102) is a predetermined distance between any of the patches and merged patches.

13. As pertaining to **claims 5 and 24**, Huttenlocher et al. teaches the method and apparatus of claims 4, 23 wherein the predetermined distance is measured from boundaries of the patches and merged patches (see Fig. 8, 98 and Fig.10)

14. As pertaining to **claims 6 and 25**, Huttenlocher et al. teaches the method and apparatus of claims 4, 24 wherein the predetermined distance (see Fig.8, 100 and 102) is measured from center portions of the patches and merged patches.

15. As pertaining to **claims 7 and 26**, Huttenlocher et al. teaches the method and apparatus of claims 1, 20 wherein the predetermined proximity threshold is calculated from the sizes and separation distances of the patches and merged patches (see Fig.8, 100 and 102).

16. As pertaining to **claims 8 and 27**, Huttenlocher et al. teaches the method and apparatus of claims 1, 20 wherein the forming of the patches further comprises: dimensioning each of the patches as small as possible while still entirely containing one of the image pixel groups (see Fig.11 column 13 lines 35-36).

17. As pertaining to **claims 9 and 28**, Huttenlocher et al. the method and apparatus of claim 8, 27 wherein after the dimensioning of the patches as small as possible, the

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forming of the patches further comprises: expanding each of the patches by moving wall portions of the patch away from a center of the patch by a predetermined distance (see Fig.8, 100 and 102).

18. As pertaining to **claims 10 and 29**, Huttenlocher et al. teaches that wherein each of the patches has a rectangular shape (see column2, lines 48-50).

19. As pertaining to **claims 11 and 30**, Huttenlocher et al. teaches the method and apparatus of claims 1, 20 wherein the identifying of the groups of image pixels (see Fig.4) that represent edge segments (see Fig.12, 202) of the object comprises: forming a background level image of the field of view, wherein the background level image is formed of a plurality of background level pixels (column 5 lines 55-56) each corresponding in location to one of the image pixels and each having a pixel value; classifying as an object pixel each of the image pixels having a pixel value that varies by at least a predetermined amount from the pixel value of the corresponding background level pixel; and identifying which of the object pixels correspond to an edge of the object (see column 16 lines 30-34).

20. As pertaining to **claims 12 and 31**, Huttenlocher et al. teaches the method and apparatus of claims 11, 30 wherein the forming of the background level image of the field of view forming N background electronic images of the field of view not containing any objects of interest, wherein each of the background electronic images is formed of a plurality of background pixels each corresponding in location to one of the background level pixels and each having a pixel value, and wherein N is a positive integer; and generating each one of the background level pixels by calculating a median value of tile

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pixel values for the background pixels corresponding to the one background level pixel (see Fig.1).

21. As pertaining to **claims 14 and 33**, Huttenlocher et al. teaches wherein the forming of the background level image of the field of view further comprises:

standardizing average values (see column 14 lines 38-42) of the background pixel values for each of the N background electronic images before the generation of the background level pixels.

22. As pertaining to **claims 15 and 34**, Huttenlocher et al. teaches that the standardizing average values (see column 14 lines 38-420) of the background pixel values further comprises: creating a histogram (see Fig.8, 98) for each one of the N background electronic images, wherein each of the histograms has a peak value that corresponds to an average value of the background pixel values for one of the N background electronic images (see column 11 lines 8-11); selecting a predetermined average pixel value; and adjusting the background pixel values for the N background electronic images so that the histograms thereof all have peak values generally equal to the predetermined average pixel value.

23. As pertaining to **claims 16 and 35**, Huttenlocher et al. teaches the method and apparatus of claims 15, 34 wherein the predetermined average pixel value is selected such that the adjusted background pixel values do not exceed a maximum pixel value (see Fig.4 column 9 lines 50-51) hereof further comprises

24. As pertaining to **claims 17 and 36**, Huttenlocher et al. teaches the method and apparatus of claims 11, 30 wherein the classifying as an object pixel further includes:

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creating a binary image of the electronic image of the field of view containing the object, wherein the binary image is formed of a plurality of binary pixels each corresponding in location to one of the image pixels, wherein each of the binary pixels is assigned to a first value if the corresponding image pixel value varies by at least a predetermined amount from the pixel value of the corresponding background level pixel, and is assigned to a second value if the corresponding image pixel value does not vary by at least the predetermined amount from the pixel value of the corresponding background level pixel.

25. As pertaining to **claims 18 and 37**, Huttenlocher et al. teaches the method and apparatus of claims 17, 36 wherein the identifying which of the object pixels correspond to an edge of the object includes: re-assigning any of the binary pixels assigned with the first value to the second value that are surrounded by others of the binary pixels all originally assigned with the first value (see column 10 lines 22-33).

26. As pertaining to **claims 19 and 38**, Huttenlocher et al. teaches the method and apparatus of claims 1, 20 wherein each of image pixels has a value, and wherein the forming of the electronic image of the field of view containing the object further comprises: creating a histogram for the electronic image containing the object, wherein the histogram (see Fig.8, 98) has a peak value (see Fig.9) that corresponds to an average value of the image pixel values; selecting a predetermined average pixel value; and adjusting the image pixel values so that the histogram has a peak value (see Fig. 10)generally equal to the predetermined average pixel value

Claim Rejections - 35 USC § 103

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. Claims 13, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huttenlocher et al. (U.S. Patent number 5539841A) in view of Lee et al. (U.S. Patent number 5642433A).

29. As pertaining to **claims 13 and 32**, Huttenlocher et al. teaches the method and apparatus of claim 12, 31 wherein the formation of the N background electronic images in the field of view as described in the above.

As pertaining to **claims 13 and 32**, Huttenlocher et al. does not explicitly teach the method and apparatus of claim 12, 31 transparent fluid through the field of view.

However, Lee et al. teaches transparent fluid through the field of view (column 1 lines 37-44). Therefore it would have been obvious to someone of ordinary skill in the art, at the time of invention was made to have modified Huttenlocher's detection of object with a transparent fluid through the field of view to form electronic images in the field of view as taught by Shil-Jong. The motivation would have been [Lee's] transparent fluid image (see column 1 lines 6-10, 45-49).

Conclusion

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30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aklilu k. Woldemariam whose telephone number is 571-270-1456. The examiner can normally be reached on Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on 571-272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A.W

4/17/07



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